UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UCTATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: DTD 2043
COURSE	: MOULD DESIGN (ACAD)
SEMESTER/SESSION	: 2-2022/2023
DURATION	: 6 HOURS

Instructions:

1. This booklet contains **8** questions.
2. All answers should be drawn in **AutoCAD software**.
3. Save your drawing files in to the created folder **20B0XXXX_FINAL DTD2043_MOULD DESIGN_NAME** (20B0XXXX is your matrix number).
4. Write legibly and draw sketches wherever required.
5. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE

ANSWER ALL QUESTIONS:

Instruction: You may refer to *Standard Mould Base* PME and answer the following questions. Save your drawing as your Name and Matric Number to the thumb drive or pendrive given, for example:

A100XXXXX_FINALDTD2043_HAIKAL BIN ADAM

Referring to the **figure below,** products is to be produce by using injection moulding process. Design a **two cavities** mould to produce *Stopper Cap* as shown below. Details of the product as follow:-

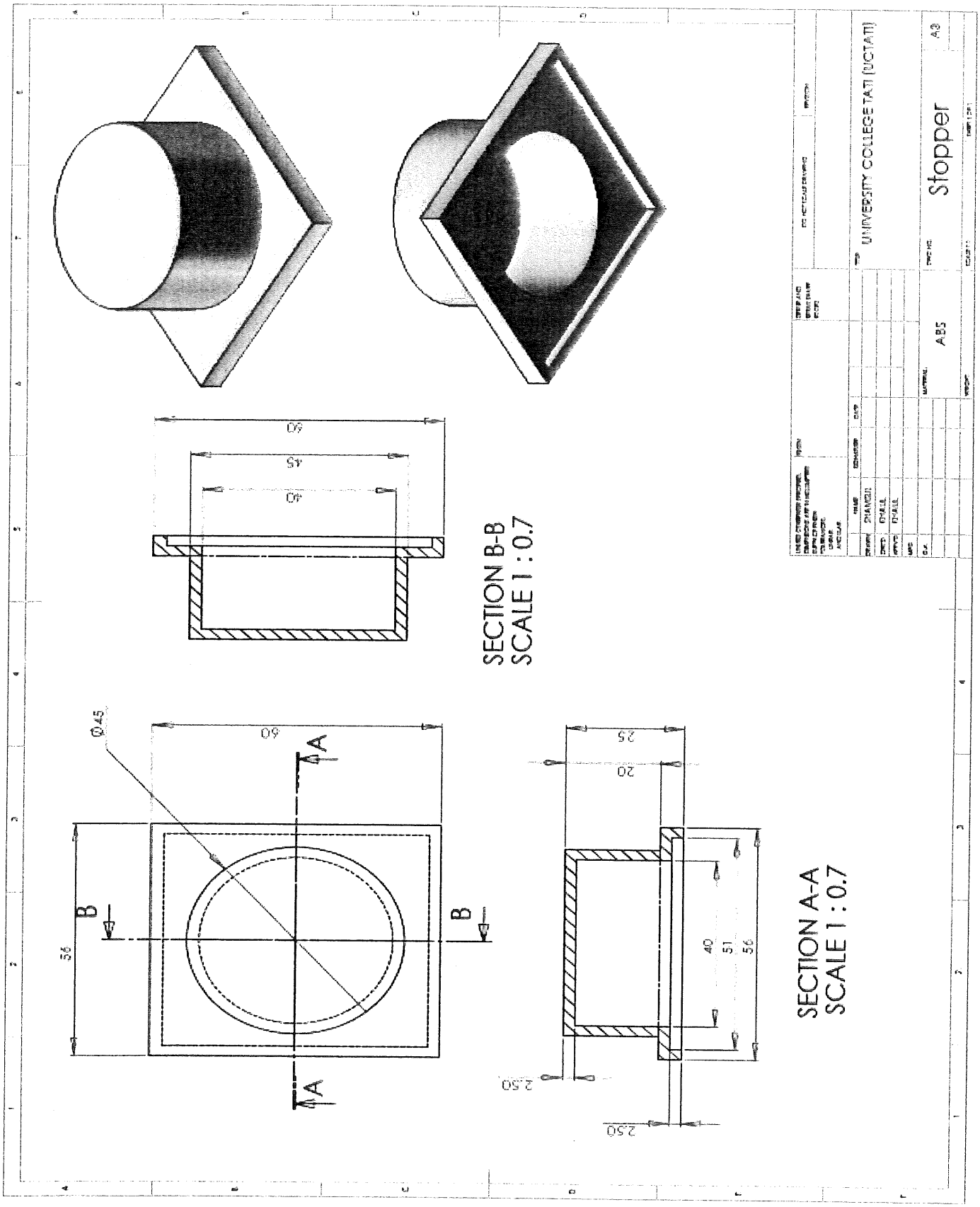
Product material	:	ABS
Shrinkage	:	1.5 %
No of cavity	:	2
Wall thickness	:	2.5 mm

QUESTION

1. **Reproduce** the detail product and given in three views (Front, Top and Side view). Refer to the drawing below. (15 marks)
2. **Construct** the detail core and cavity inserts by given three views (Front, Top and Side view). (10 marks)
3. **Assemble** the whole parts in full assembly mould with the constraints relationship properly. (25 marks)
4. **Construct** plan view and sectional view of fixed half assembly. (10 marks)
5. **Construct** plan view and sectional view of moving half assembly. (10 marks)
6. **Identify** the suitable injection system for the product; including locating ring, sprue bush and gate. (10 marks)
7. **Identify** the suitable ejection system for the product; including ejection pins, and sprue puller. (10 marks)
8. **Build** the cooling system used in that mould. (10 marks)

Note: All the detail drawing must be including with the full dimension.

Appendix A



----------End of question----------

RUBRIC

Criteria	Marks
All question answered will be marked according to the answer schema	/100

Appendix B

Recommended Runner

Material	Recommended Runner Diameter (mm)
ABS, SAN	4 – 10
Acetal	3 – 10
Acrylic	7.5 – 10
Impact Acrylic	8 – 12
Nylon	1.5 – 10
Polycarbonate	4 – 10
Polyethylene	1.5 – 10
Polypropylene	4 – 10
Polystyrene	3 – 10
PVC (Plasticized)	3 – 10

Material constant

Material	n
PE, PS, PA, PC	0.6
PP	0.7
PA, Cellulose acetale acrylic	0.8
PVC	0.9

The width of the gate controls flow rate

$$D = \frac{n \cdot \sqrt{A}}{30}$$

Depth of Gate

$$h = n \times t$$